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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/475,664	12/30/1999	Masahiro Nakata	P18495.A01	6666

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EXAMINER

MYERS, PAUL W

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 03/25/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/475,664

Applicant(s)

NAKATA ET AL.

Examiner

Paul W Myers

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 December 1999.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3 and 4.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 10, 13-15 and 17 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by US005485004A to Suzuki et al.

- a. In regard to claim 10, Suzuki in column 5 lines 13-18 details the areas to be used for focus detection are designated as pixel blocks. Accumulation (i.e. integration) of charges are conducted on each pixel block independently the other pixel blocks, and the results of accumulation are used for focus detection (i.e. a plurality of light receiving means which receive object images within a plurality of focus detection zones and perform integration operation to integrate electric charges produced by a photoelectric conversion of optical signals of said object images). Suzuki in the abstract details the sensor device also includes a monitor output circuit for outputting, for each of the pixel blocks, at least one monitor output as the representative of the amounts of charges accumulated in the pixels in each of the pixel blocks (i.e. a plurality of monitor means located adjacent to said light receiving means for receiving and integrating said object

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images within said focus detection zones and for monitoring values of said electronic charges that have been integrated of said corresponding light receiving means). Suzuki in column 11 lines 7-14 details that the output of the monitors is input to the accumulation termination comparator. Suzuki further details that the output of the accumulation termination comparator is inverted when the level of accumulation has reached a predetermined level (i.e. integration control means for stopping said integration operation of said corresponding light receiving means when said integration value monitored by said monitor means reaches a predetermined value). Suzuki in column 12 lines 19-23 details that when the luminance of the subject is too low to enable accumulation to the preset comparing level within the maximum accumulation time, the accumulation is forcibly terminated by an interrupt. The maximum accumulation time may vary (i.e. correction means for correcting said integration value of said light receiving means whose integration operation has been stopped by said integration control means, in accordance with a correction value to correct a difference in said integration value between said monitor means and said corresponding light receiving means).

b. In regard to claim 13, Suzuki in figure 6B shows a sequence that is explained in more detail in claim 14 that allows sensors of low luminance to continue to integrate while correcting the gain of the amplifier. This loop can iterate until the accumulation signal is set in step (005 and 006). Suzuki in column 11 lines 7-17 details that the output of the monitors is input to the accumulation termination comparator. Suzuki further details that the output of the accumulation termination comparator is inverted when the

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level of accumulation has reached a predetermined level. Suzuki further details that with this arrangement it is possible to confirm completion of accumulation by detecting the state of output of the accumulation termination comparator in steps (005 and 006)

c. In regard to claim 14, Suzuki in column 11 lines 59-61 details that counting of accumulation time start when accumulation starts (i.e. a counter means for counting an integration time of said light receiving means). Suzuki in figure 6B show a flow diagram relating to the integration and gain of the camera. Suzuki in column 11 line 6 details that the accumulation of charges starts at step 004. Suzuki in column 12 lines 19-23 details that when the luminance of the subject is too low to enable accumulation to the present comparing level within the maximum accumulation time, the accumulation is forcibly terminated by an interruption which is executed in Step 019. Suzuki in column 12 lines 26-32 details that when this forcible termination of accumulation is executed, the amount of charge accumulated in a single column of pixels is so small that the accuracy of the automatic focus detection may be impaired. In this case, therefore, whether or not the signal available on the next pixel column is to be added is determined in Step 020. Suzuki in column 12 lines 44-47 details that if the addition of the signals from the adjacent pixel columns is determined as being unnecessary in the step 020, the process returns to Step 007 to re-start the ordinary sequence. Suzuki in column 11 lines 19-31 details a plurality of comparing levels are used for the accumulation termination comparators for selective use according to the amount or level of the accumulation. With this technique, it is possible to determine, in accordance with the selected comparing

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level, the amplifier gain in the reading operation. After detection of termination of the accumulation in the designated area (columns), the process proceeds to step 007 in which the gain of the amplifier in the reading system is set to the level determined by the method described above. Suzuki in figure 6A details that the steps 008, 009 and 010 are preformed. Suzuki further show in step 010 that no matter if AF is possible the camera continues on to step 014. Suzuki in column 11 lines 45-61 details that in step 014 the state of a maximum accumulation time flag indicative of elapse of the maximum accumulation time is determined. Suzuki further details that if the flag has been reset, the process proceeds to Step 015 which determines whether the accumulation computation has been finished on all designated areas. Suzuki further details that if the accumulation computation has not finished the process returns to step 005 (i.e. gain setting means for comparing a gain of said integration value of said light receiving means that have not reached said predetermined value after a maximum integration time has lapsed, with said predetermined value that has been corrected in accordance with correction value to correct said integration value of said corresponding monitor means to thereby set said gain. For further details refer to examiners notes for claim 10.

d. In regard to claim 15, Suzuki in column 11 lines 19-31 details a plurality of comparing levels are used for the accumulation termination comparators for selective use according to the amount or level of the accumulation. With this technique, it is possible to determine, in accordance with the selected comparing level, the amplifier gain in the reading operation. (i.e. said integration control means varies said predetermined value

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stepwise after said lapse of said maximum integration time to compare said modified predetermined value with said integration value by said monitor means.

e. In regard to claim 17, Suzuki in column 12 lines 19-23 details that when the luminance of the subject is too low to enable accumulation to the present comparing level within the maximum accumulation time, the accumulation is forcibly terminated by an interruption which is executed in Step 019. As stated in the examiner's notes for claim 14, the process is an iterative process that can be carried out as many times as needed (i.e. wherein said integration control means compulsively stops said integration operation of all said light receiving means that have not reached said varied predetermined value).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 11 <sup>is</sup> ~~is~~ rejected under 35 U.S.C. 103(a) as being unpatentable over US005485004A to Suzuki et al in view of US005943514A to Sato et al.

f. In regard to claim 11, Suzuki in figure 7A shows that his focus detection system can comprise of three zones one of the zones being the central zone.

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Suzuki fails to explicitly state correction means sets said correction values of other light receiving means with reference to said light receiving means corresponding to a central focus detection zone on said image surface.

However, Sato in column 9 line 63 to column 10 line 15 details that the output of the (monitor) light receiving elements M6-M10 are supplied to the integrating operation control circuit 25B (center zone) and the out put of the integrating operation control circuit 25B is input to the integrating operation control circuit (25A). Sato further details that 25A and 25 B are used are used for integration control of 13C (i.e. correction means sets said correction values of other light receiving means with reference to said light receiving means corresponding to a central focus detection zone on said image surface). Sato in column 10 details that by using this configuration the line sensors (13A and 13C can be used to conduct triangulation measurements, and the precision in the measurement of the object distance can be enhanced.

Therefore, it would have been obvious to anyone of ordinary skill in the art at the time of the invention to combined Suzuki's three zone AF system with Sato's method of controlling the outer sensors based on the center position in order to improve measurement of the object distance thereby enhancing the precision of the AF system.

g. In regard to claim 12, Sato in column 9 line 63 to column 10 line 15 details that output of control circuit 25B is input to the integration operation control circuit (25A and 25C) (i.e. predetermined value is set based on an integration value of a central monitor means which monitors a central focus detection zone, so that said integration values of



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said light receiving means corresponding to other monitor means can be set with reference to said central monitor means.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over US005485004A to Suzuki in view of U.S. 4,587,416 to Kudo et al.

h. In regard to claim 16, Suzuki details a means for gain is set by comparing an integration value with a predetermined value that has successively been corrected in accordance correction values to correct integration values of corresponding monitor means.

Suzuki fails to explicitly state order of magnitude of absolute values.

However, Kudo in column 2 line 46 to column 3 line 34 details that an amplifier 11 amplifies the image signals from the image sensor 8. Kudo further details that the output of the amplifier is eventually passed to differentiation circuit 13 which has it polarities realized by an absolute value circuit 14. Kudo further details that the absolute value goes through further processing and ends up a divider 22. Kudo further details that the output of divider 22 is a signal indicative of the contrast, namely, a signal gain-controlled for the brightness. Kudo further details that according to such gain control, even when the integrated value by the integrator (17) exhibits some decrease during an in-focus condition, the contrast signal during in-focus condition is particularly emphasized and the focusing accuracy becomes better.

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Therefore, it would have been obvious to anyone of ordinary skill in the art at the time of the invention to combined Suzuki's means for gain setting with Kudo's use of absolute values to set the gain in order to emphasize the contrast signal thus increasing the focus accuracy.

### *Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- i. US005845155A to Nakata et al for all limits of claim 10.
- j. US005870635A to Shinto et al for focus detection with monitor means.
- k. US005329109A to Kodama for focus detection with monitor means and gain setting means.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul W Myers whose telephone number is (703) 305 4039. The examiner can normally be reached on Mon-Fri 8am-5pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305 4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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